Research Article

Incidence of Pelvic and Paraaortic Lymph Node Metastasis in Epithelial Ovarian Cancer at a Tertiary Care Center

Insidensi Metastasis Kelenjar Getah Bening Pelvis dan Paraaorta pada Kanker Epitel Ovarium di Suatu Rumah Sakit Tersier

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Abstract

Objective: To investigate the incidence of pelvic and paraaortic lymph node metastasis in epithelial ovarian cancer.

Methods: This was a cross-sectional study. Data were collected from medical records, and from the cancer registry 1539 medical records were obtained. From there, 863 patients were operated and 676 were not, and only 401 medical records were found complete, and 306 samples were excluded because they have been treated with NAC and underwent surgery, patients who underwent surgery but the results is not the epithelium, and patients who underwent surgery, but the results were benign or borderline. And 95 patients who underwent primary surgery and lymphadenectomy only 55 patients have results in lymphadenectomy. This study uses a calculation of sample size with categorial descriptions, with precision of 3% then obtained a minimum sample size of 261 patients.

Results: According to the characteristics of the study subjects above, the results were stage I, II, III respectively 60%, 10.9%, and 29%. The metastasized of the lymph node paraaortic 9.1%, and pelvic/paraaortic 20% pelvic/paraaortic23.6%. Based on the degree of differentiation the results were good differentiation 30.9%, moderate differentiation 23.6%, and poor differentiation 45.5%. We found that paraaortic lymph node metastasis were most frequent at stadium III (43.8%). In relationship between lymph node metastasis with differentiation of epithelial ovarian cancer, the most frequent epithelial ovarian cancer were one with poor differentiation in pelvic/paraaortic lymph node with the sum of 69.2%. From analysis, there is significant difference between serous hystologic subtype with mucinosum subtype in pelvic lymph node, significant difference between serous hystologic subtype and clear cell in paraorta or pelvic lymph node and between the serous histology subtype and mucinous as well.

Conclusion: Lymph node metastasis incident of ovarian epithelial cancer in paraaorta amounts 20%, pelvic 9.1% and pelvic or paraaortic 23.6%. Higher the stadium, the lymph node involvements will be higher as well (pelvic and paraaortic). In stadium 1 of mucinous subtype with well differentiation has minimal lymph node involvement so we can be more selective in considering the risk and benefit of lymphadenectomy.

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Keywords: lymph node metastasis, ovarian cancer

Abstrak

***Tujuan**: Mengetahui insiden metastasis kanker ovarium epitelial yang dilakukan pembedahan primer pada kelenjar getah bening pelvik, paraaorta dan pelvik/paraaorta di Rumah Sakit Dr. Cipto Mangunkusumo periode Januari 2009 - Desember 2015.*

***Metode**: Penelitian ini menggunakan desain penelitian potong lintang, data diambil dari rekam medis, dari data kanker register didapatkan 1584 daftar rekam medik, namun didapatkan 425 pasien kanker ovarium, dan 331 yang ekslusi, didapatkan 55 data yang masuk kriteria inklusi.*

***Hasil**: Dari 55 sampel yang dilakukan pembedahan primer pada kanker ovarium tipe epitel. Penyebaran kelenjar getah bening pada kanker epitel ovarium yang dilakukan pembedahan primer pada KGB paraaorta adalah 20%, pelvik 9,1% dan pelvik/paraaorta 23,6%.*

***Kesimpulan**: Insiden metastasis KGB kanker epitel ovarium pada paraaorta sebanyak 20%, pelvik 9,1% dan pada pelvik/paraaorta 23,6%. Semakin tinggi stadium, maka semakin tinggi keterlibatan KGB (pelvik dan paraaorta). Pada subtipe serosum lebih banyak menyebabkan keterlibatan pada KGB (pelvik dan paraaorta). Semakin buruk derajat differensiasinya, maka semakin tinggi keterlibatan pada KGB (paraaorta). Pada stadium I subtipe musinosum derajat difensiasi baik dengan keterlibatan pada KGB yang minimal sehingga dapat lebih selektif dalam mempertimbangkan risk dan benefit dari limfedenektomi.*

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***Kata kunci**: kanker ovarium, metastasis kelenjar getah bening*

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INTRODUCTION

Ovarian cancer is one of the most common gynecological cancers, after cervical and breast cancers. Ovarian cancer metastasized directly through extention and exfoliation, lymphatic and hematogenous.[1,2] Stage, cell types, and tumor histological differentiation influence the metastasis of ovarian cancer.[3] Lymphogenic metastasis most commonly found in retroperitoneal pelvic and paraaortic lymph nodes. Lymphogenic spread affects ovarian cancer prognosis.[1,4]

Lymphadenectomy in ovarian cancer is still a controversy.[3,5] Currently, there is no profound prospective study or randomized controlled trial (RCT) regarding its pathological anatomy, leading to this controversy. 1998 FIGO suggested that pelvic and paraaortic lymphadenectomy are an integrated part that could not be separated during ovarian cancer surgical staging.[6] Studies regarding lymphadenectomy are not profound enough. To date, there are no study published about the incidence of epithelial ovarian cancer lymph node metastasis at Dr. Cipto Mangunkusumo Hospital.

METHODS

This was a cross-sectional study. Data were collected from medical records, and the cancer registry. Of these, 863 patients underwent primary surgery and 676 were not, and only 401 medical records were found complete, and 306 samples were excluded because they have been treated with NAC and underwent surgery, patients who underwent surgery but the results is not the epithelium, and patients who underwent surgery, but the results are benign or borderline. And 95 patients who underwent primary surgery and lymphadenectomy only 55 patients have results in lymphadenectomy. This study uses a calculation of sample size with categorial descriptions, with precision of 3% then obtained a minimum sample size of 261 patients.

RESULTS

1539 medical records were obtained. According to the characteristics of the study subjects above, the results are Stage I, II, III respectively 60%, 10.9%, and 29%. The metastasized of the lymph node paraaortic 9.1%, and pelvic/paraaortic 20% pelvic/paraaortic 23.6%. Based on the degree of differentiation the results were good differentiation 30.9%, moderate differentiation 23.6%, and poor differentiation 45.5%.

Table 1. Sample Characteristics patien of Epithelial Ovarian Cancer Underwent Primary Surgery

Category	n	Percentage
Age :		
<30	1	1.8
31-40	11	20
41-50	23	41.8
>51	20	36.4
Clinical stadium :		
I	33	60
II	6	10.9
III	16	29.1
Lymph node metastasis :		
Pelvic	5	9.1
Paraaortic	11	20
Pelvic/paraaortic	13	23.6
Negative	42	76.4
Grade :		
NA	6	10.9
Well	16	29
Moderate	11	20
Poor	22	27.2
Histologisubtype :		
Brenner	1	1.8
Clear cell	23	41.8
Endometioid	13	23.6
Mucinous	11	20
Serous	7	12.7

The association between lymph nodes metastasis and cancer stadium are shown in Table 2. We found that paraaortic lymph node metastasis were most frequent at stadium III (43.8%) and the least frequent at stadium II (0%). From the statistical analysis we found significant difference in proportion value in pelvic, paraaortic and pelvic/paraaortic lymph node with higher value in stadium III than stadium I ($p<0.05$).

Table 2. Distribution of Pelvic, Paraaortic, and Pelvic/Paraaortic Lymph Node Metastasis in Epithelial Ovarian Cancer

Clinical stadium	Stadium I n=33		Stadium II n=6		Stadium III n=16		I vs II	I vs III	II vs III
Lymph node	**n**	**%**	**n**	**%**	**n**	**%**	**p value**		
Pelvic									
Positive	1	3	0	0	4	25	0.806	0.012*	0.064
Negative	32	97.0	6	100	12	75			
Paraaorta									
Positive	3	9.1	2	33.3	6	37.5	0.165	0.020*	0.823
Negative	30	90.9	4	66.7	10	62.5			
Pelvic/Paraaorta									
Positive	4	12.1	2	33.3	7	43.8	0.250	0.015*	0.599
Negative	29	87.9	4	66.7	9	56.2			

In relationship between lymph node metastasis with differentiation of epithelial ovarian cancer, the most frequent epithelial ovarian cancer were one with poor differentiation in pelvic/paraaortic lymph node with the sum of 69.2% and the least frequent were one well differentiated in pelvic lymph node (0%). From analysis, this study found significant difference in proportion value in paraaortic lymph node between those with poor differentiation compared with moderate differentiation, with $p<0.05$.

The most common incidence between lymph node metastasis with histologic subtype were shown in Table 2. Paraortic lymph node with branner histologic type amounts[1] 100% because the total of the samples in brenner is only 1, and the second most common is serous hystologic in paraaortic lymph nodes which is 42.9% and the least is mucinosum subtype in pelvic lymph node, amounted to 0%. There was significant difference between serous hystologic subtype with mucinosum subtype in pelvic lymph node, significant difference between serous hystologic subtype and clear cell in paraorta or pelvic lymph node, and between the serous histology subtype and mucinous as well.

Table 3. Distribution of the Histological Subtypes of Pelvic, Paraaortic, and Pelvic/Paraaortic Metastasis in Epithelial Ovarian Cancer

Histology	Clear cell n=23		Endometriosis n=13		Brenner n=1		Serous n=7		Mucinous n=11		Total n=55	
Lymph node	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Pelvic												
Positive	2	8.7	1	7.7	0	0	2	28.6	0	0	5	9.1
Negative	21	91.3	12	92.3	1	100	5	71.4	11	100	50	90.9
Paraaortic												
Positive	4	15.4	2	15.4	1	100	3	42.9	1	9.1	11	20.0
Negative	19	84.6	11	84.6	0	0	4	57.1	10	90.9	44	80.0
Pelvic/Paraaortic												
Positive	4	17.4	2	15.4	1	100	3	42.9	1	9.1	13	23.6
Negative	19	82.6	11	84.6	0	0	4	57.1	10	90.9	42	76.4

**p value < 0.05 ANOVA test*

There were significant differences in the pelvic lymph nodes obstained value higher proportion on serous histological subtype compare with mucinous type ($p<0.05$) were show in Table 5, and there were significant differences in the pelvic/ paraaortic lymph node metastases between clear cell histology subtype compared to serous, as well as between serous and mucinous histology subtype. However there were no significant difference in paraaorta lymph node.

DISCUSSION

In this study, we could not reach the minimum sample. From data subject characteristics showed that the spread of ovarian cancer by age at most in the age group 41-50 years by 41.8% this is in accordance with what was found in the literature that increasing age is a major risk factor for developing ovarian cancer, 50% of ovarian cancers diagnosed at the age of 65 years[1,7] The spread of lymph nodes obtained 23.6%, and the most to the lymph node paraaorta is 20% for deployment on paraaorta through lymphatic channels to follow along infudibulopelvikum ovarian vein and ended up in lymph nodes as high paraaorta renal blood vessels, according to the study.[8,9] This is in line with a review conducted in the Netherlands M. Kleppe et al (2011) were obtained from 14 studies that incident spread of lymph node on ovarian epithelial cancer was 14.2% (range 6.1-29.6%) where only the lymph node 7.1% and only 2.9 paraaortic % in the pelvic lymph nodes.[3,10]

CONCLUSIONS

The incidence of lymph node metastasis of ovarian epithelial cancer in paraaorta amounts 20%, pelvic 9.1% and pelvic or paraaortic 23.6%. Higher the stadium, the lymph node involvements will be higher as well (pelvic and paraaortic). In serous subtype, there is more incidents of lymph node involvements (pelvic and paraaortic). If the differentiation type is worse, there will be higher rate of pelvic and paraaortic lymph node involvement. In stadium 1 of mucinous subtype with well differentiation has minimal lymph node involvement so we can be more selective in considering the risk and benefit of lymphadenectomy. Further prospective studies are required to investigate the metastatic factors to lymph node more accurately.

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